

- J. J. Sedelmaier
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 - 7 min read

Thought You Had Animation Pegged? Not For Much Longer !

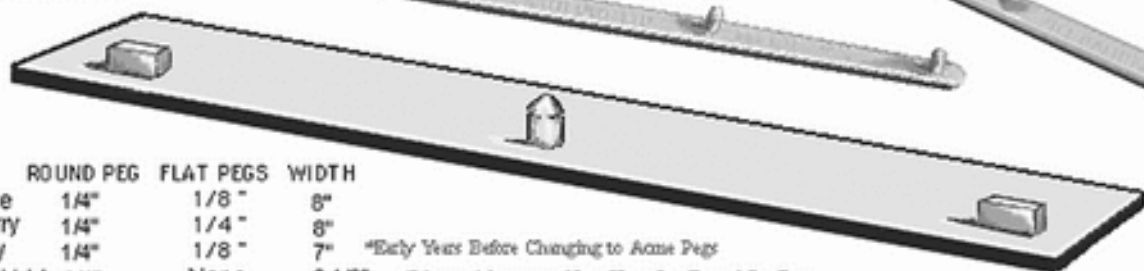
The drawing/image registration process is a fundamental aspect of film animation. If the images that are animated don't have a shared foundation with each other, the movement that's created by the animator has no common relationship with the background or the viewer's point of view—it just doesn't work. It was John Randolph Bray who established and patented the peg system of registration in 1915. For almost a century, folks working in animation production have used paper, pencils, various designs of lightboxes, and pegged drawing discs to do their craft, and within this world of registration there were several standards. In New York there were pegs by Acme (a small round hole with two thin slots on either side), Oxberry (a small center hole with wider slots on either side), Signal Corps (close to Oxberry but closer to three round holes) and Fleischer/Famous/Terrytoons (three round holes). California/Hollywood seemed to hover in the world of Acme, but Disney (which switched over to Acme 20 years ago) had paper that was also punched with two sets of holes—one for the animator and one for the Ink and Paint Department. This allowed for less stress/damage on the holes and thus better registration. It's only been within the past decade that this conventional process and this sort of equipment has proven to be on its way out.

The PegBar Chart

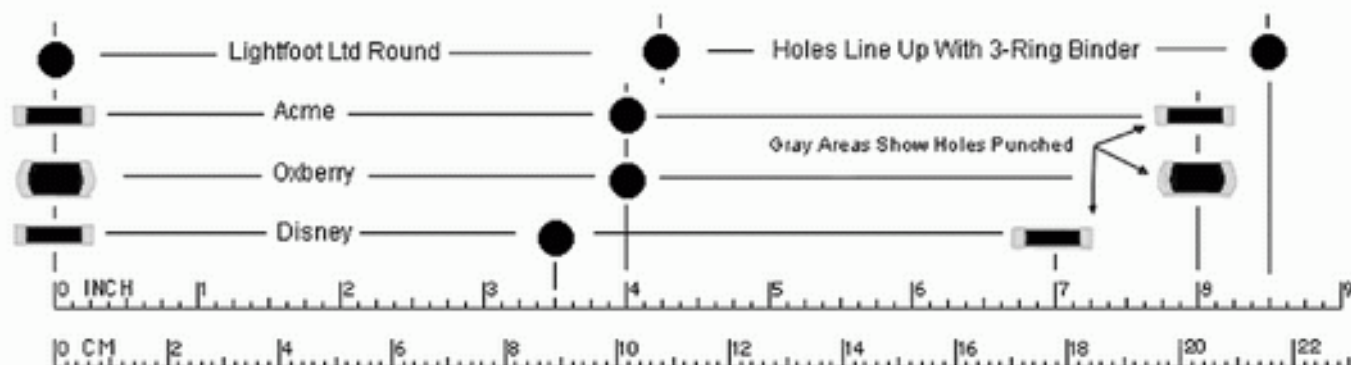
Acme Plastic

Lightfoot Ltd Round Plastic

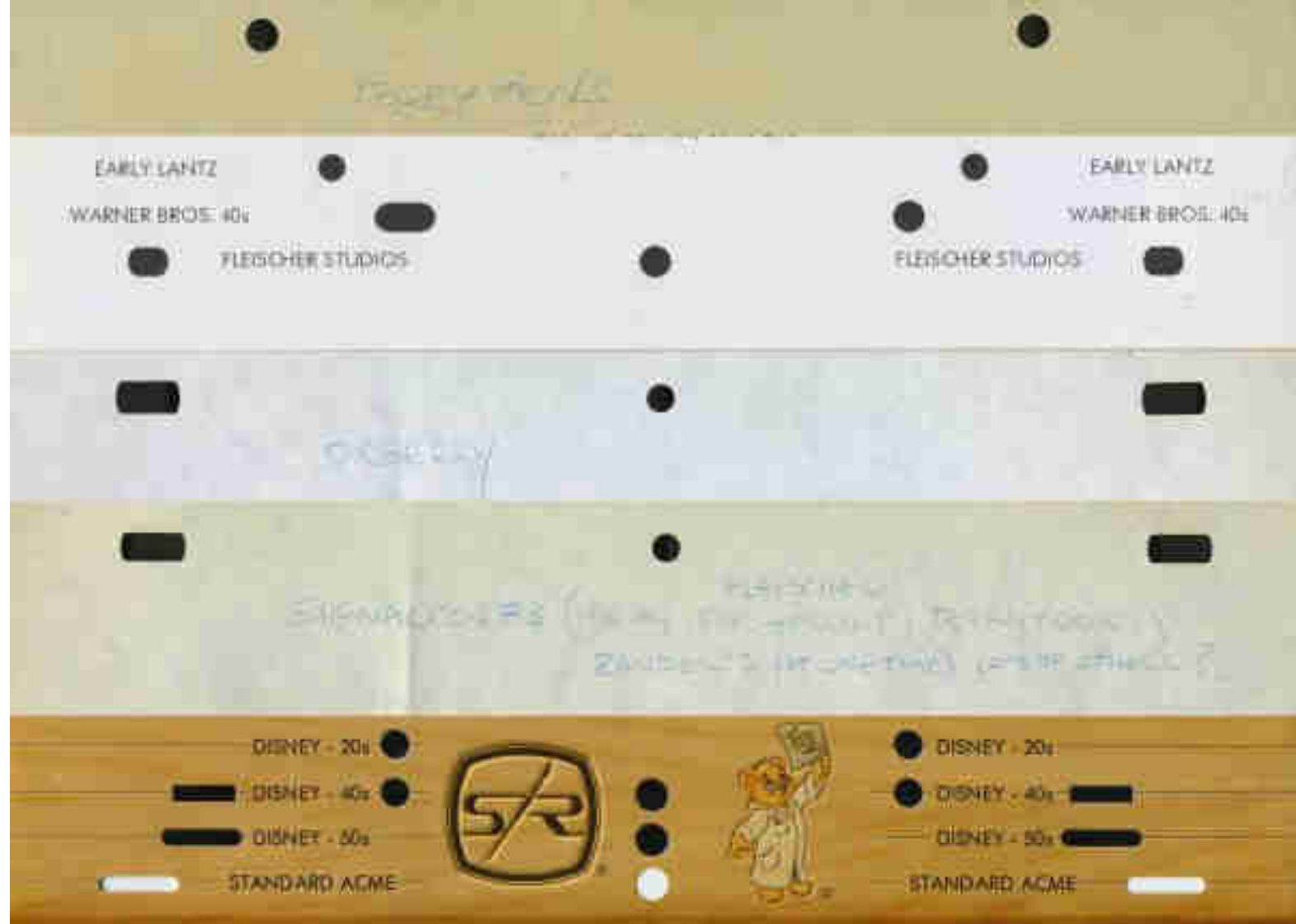
Acme Aluminum



	ROUND PEG	FLAT PEGS	WIDTH	
Acme	1/4"	1/8"	8"	
Oxberry	1/4"	1/4"	8"	
Disney	1/4"	1/8"	7"	"Early Years Before Changing to Acme Pegs"
Lightfoot Ltd	1/4"	None	8 1/2"	"Disney Adventures Now Uses Our Round PegBar"

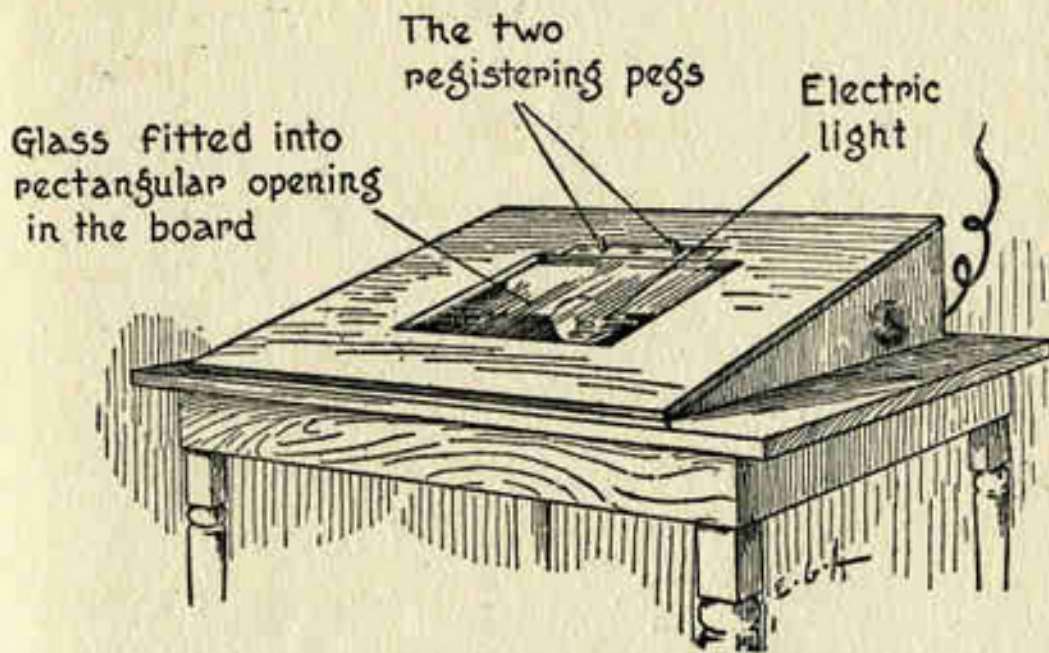


ACME PEGBAR



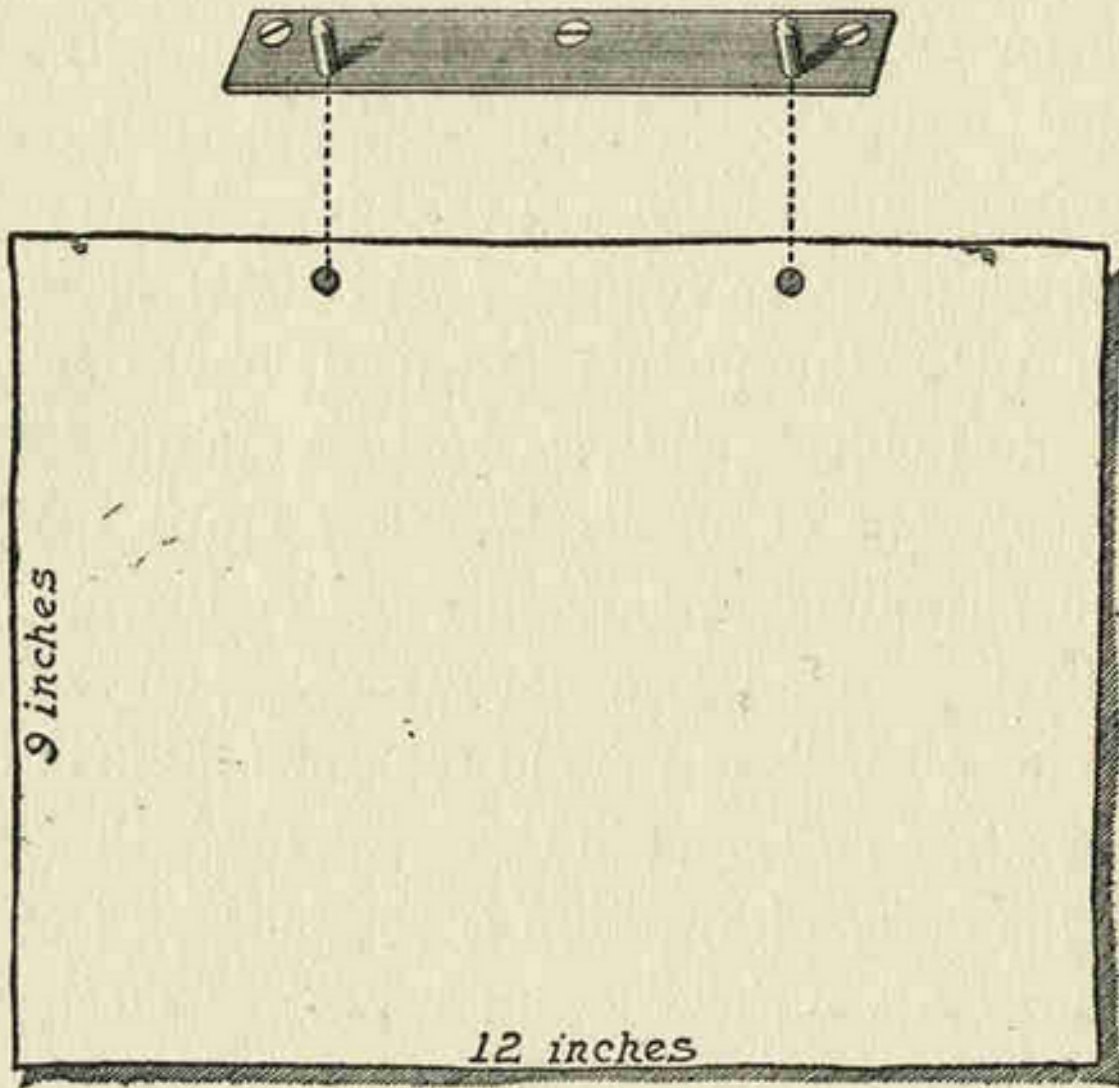
With the advent of CGI and digital drawing tablets like Wacom's Cintiq, actually drawing the sequential images on paper and either filming or scanning the drawings is becoming a rarity. I happened to be in our storeroom recently and saw all the old discs and lightbox wedges unused and stacked in the corner. It seemed like a natural subject for a piece here—especially since many of the pieces of equipment have interesting backstories to them. And not all the material and items have been sitting in the dark the past few years—some of the pieces are on display in the studio here and were also a part of the Westchester Arts Council exhibit I curated with Howard Beckerman in 2009 on the history of New York Animation, titled [“It All Started Here”](#). Hopefully, this successful exhibit will find a home at the Museum of the Moving Image in Astoria, Queens, in the near future!

Now with a huge pile of white linen paper cut to a uniform size of about nine by twelve inches, the animator apportions the work to the several assistant animators. The most important scene or action, of course, falls to his share. There are several ways of going about making animated cartoons, and trick titles, and these methods will be touched upon subsequently. But in the particular method of making animated cartoons



"ANIMATOR'S" DRAWING-BOARD.

which we are describing now—that in which paper is the principal surface upon which the drawings are made in ink—all the workers make their drawings over a board that has a middle portion cut out and into which is fitted a sheet



A SHEET OF PERFORATED PAPER AND THE REGISTERING PEGS.

Two pages from the first book published to exclusively address the craft of cartoon animation, Edwin G. Lutz's "Animated Cartoons" (1920 – Charles Scribner's Sons). [Here's a link](#) to an article on the book.

So—here are some vintage and current examples of a mainstay of the animation production industry that will soon be obsolete. (Sniff . . .)



One of the typical animation desk setups used in our studio for 20 years. These lightbox “wedges” were built for the studio when we did the launch season of MTV’s “Beavis and Butt-head” in 1992-93. They’re made of maple-veneered plywood with solid maple trim. A simple fluorescent light supplies illumination from underneath; Luxor “Luxo” goosenecks supply overhead light.



Straight-ahead view of the lightbox with a 12-field Chromacolour plexiglas disc



Animation artist Don Poynter at work on one of the JJSP maple wedges and Chromacolour discs, circa 1993



Drawing station utilizing a 16-field Chromacolour disc. The larger field was necessary for larger artwork. Most animation was produced at a 12-field size, however.



An example of a 12-field Oxberry disc. This is an aluminum disc with brass panning pegbars with painted increments. The pegbars slide left to right (west to east) and allow for animated pans to be planned/plotted by exposing the increments frame by frame. The cameraman would translate the animator's instructions when filming the prepared artwork. This particular disc happens to be the first disc I ever purchased: \$265.00 direct from the Oxberry company.

**AXBERRY**

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A close-up of the Oxberry disc. This one uses the Acme peg system. Every project I ever worked on, and that my studio produced, used Acme pegs.



My animation desk (built by Jan Svochak) with Oxberry, Acme pegged disc. This was Tom Warburton's home for the several years he worked at JJSP. This happens to be in the third-floor penthouse space (circa 1994) where "Beavis and Butt-Head" was produced.



An earlier Oxberry disc utilizing inscribed increments on the pegbars. As hearty as the printed versions were, there was always the risk that the printing would wear off.



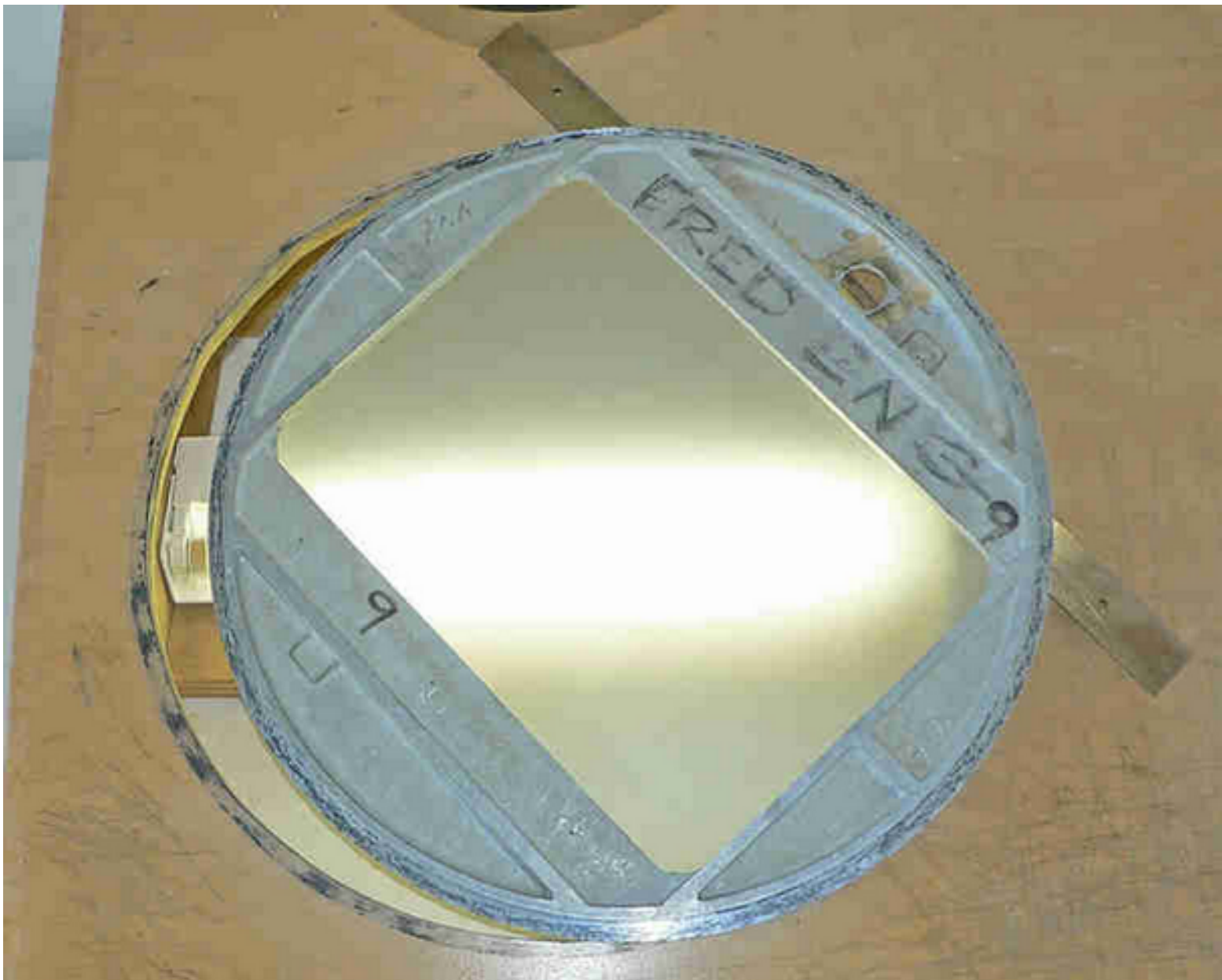
A Richmark disc (Richmark later purchased Oxberry) with inscribed pegbars. This disc also has straight vertical plates installed on either side of the glass to allow for a straightedge rule (makeshift T-Square) to be used to draw perfectly straight lines.



Here's an Oxberry disc that shows what happens when the printing starts wearing down to the brass.



Animation artist Fred Eng's disc from the 1960s. Say bye-bye to those increments. . . The lack of a sliding pegbar on the bottom means it wasn't necessary for plotting top/bottom pans, and as a result was used by an assistant animator/ink-and-paint production person.



Same disc as above showing Fred Eng's name, perhaps used at Carlton Reiter Studio



Rose Eng, Anne Eng (Fred's wife), an unidentified man, and the artist Fred Eng. April 1952. (From the amazing ["Splog" of Michael Sporn](#))



An Oxberry ink and paint disc



This lightbox wedge came from R. O. Blechman's "The Ink Tank" animation studio. It's made of plywood and painted black with black linoleum on the face surface. The Ink Tank produced wonderful projects, including the Emmy Award winning film for PBS "The Soldier's Tale." I worked there from 1984 through 1990.



A Richardson Camera Company disc. This was one of Jan Svochak's discs, which means that there were undoubtedly endless images of Punchy, (of Hawaiian Punch fame) that danced across this Plexiglas surface!



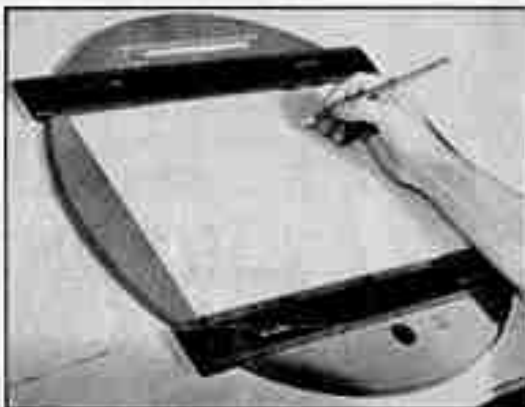
A FAX-Richardson "Magnabar" animation disc. The pegbars are magnetized.

fa x animator's discs

There are two FAX and two FAX-RICHARDSON ANIMATOR'S DISCS. All have these qualities in common:

Discs have 16-1/2" turning guides to fit standard table cut-outs. To assure precision, they are made of heavy cast aluminum, stress-relieved; finish is baked enamel. Each has a shatterproof Plexiglas-opalite window to diffuse back light and assure a smooth working surface. Recessed increment markings are in white, for visibility.

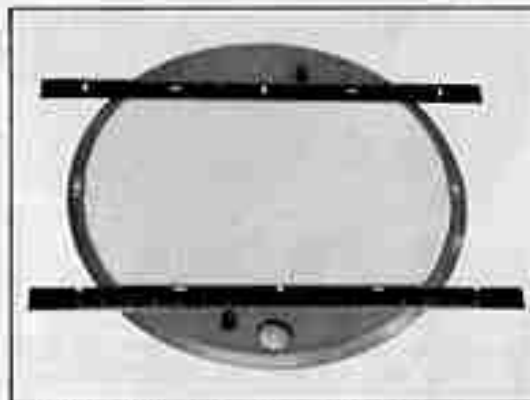
Bar-guide slots are precision-milled, to take top and bottom 18"-long black anodized aluminum bars. FAX-RICHARDSON Discs have dovetail bars, secured by thumbscrews. FAX Discs use MAG-NABARS® in which magnets secure bar-position. All bars have two oblong and three round pegs. Both Acme and Oxberry pegs are available on FAX Discs (only).



FAX 12/16-Field Disc (see in descriptive price list). This is the only combination disc on the market. Reversal of position of both Magnabars changes field-size. Bars up to 42" long are available on special order.



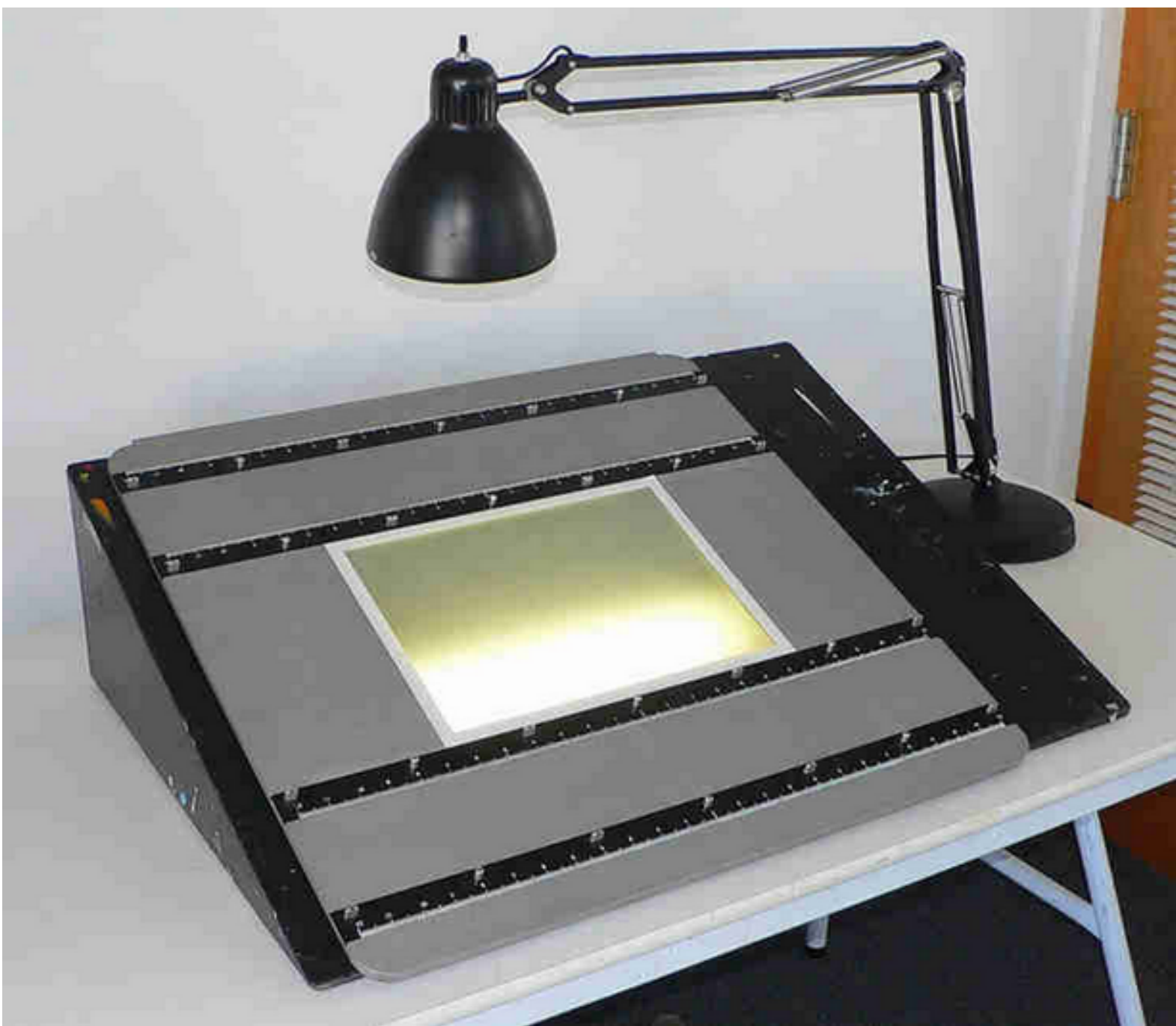
FAX 12 Disc (see in descriptive price list). 12-field only, with Magnabars.



FAX-RICHARDSON 12 (see in descriptive price list). 12-field only, with dovetail bars.

Not shown: FAX-RICHARDSON 16 (see in descriptive price list). 16-field, with dovetail bars. Special bars are available to convert FAX-RICHARDSON 16-field discs to 12-field.

fa x company 374 South Fair Oaks Avenue, Pasadena, California 91105 • 213/681-3084



This is a planning board made exclusively for veteran animator and Zander's Animation Parlour studio head Jack Zander by John Oxberry. It's solid aluminum (painted silver/grey) with brass-inscribed pegbars and a screwed-on lip that allows it to rest/hang on any bottom-lighted drawing surface. [A nice profile on John Oxberry is here](#) in another installment of Michael Sporn's wonderful "Splog."



This is a lightbox from the Bray Studio. The disc is squared off and rimmed in aluminum for use with a T-Square. The Bray Studio was one of the original professional animation studios of the industry. Founded in 1914 and closing in the early 1980s, it had made a transition from character-

based cartoons in the 1920s to filmstrips and industrial educational films. This drawing setup seems to straddle the two worlds . . .



Made of wood and painted grey, the “disc” is covered with linoleum with clear glass taped within the recessed opening. A pegbar was screwed in under the glass.



Good luck getting a replacement bulb for this fluorescent fixture! A piece of reflective sheetmetal (having lost its sheen long ago) spans the interior.



This is John Whitney Senior's (1917-1995) animation disc from when he was a director at the California UPA studio circa 1955. Whitney was one of the pioneers of computer imaging and an important experimental filmmaker. His son John Jr. was the founder of Digital Productions (later USAnimation), the studio that did all the digital ink-and-paint and compositing on the first season of "Beavis and Butt-Head."



Reverse of the above



Animator Willis Pyle working on a UPA disc similar to the one above, circa late 1940s. Photo from a previous [Imprint article by John Canemaker](#). (My first animation lightbox was a vintage wedge owned by Willis Pyle and loaned to me by Tony Eastman in 1980.)



A drawing disc set-up from the Fleischer Studios circa 1936



This self-contained drawing wedge came with interior and overhead gooseneck light as well as a secured inkwell reservoir and pencil/brush holder/spring. The lever at the top of the disc and the flap above the glass contains a special surprise. The Fleischer Studio had also invented a unique apparatus that could lift drawings off the three round pegs evenly without risking torn holes.



A close-up of the brush/pencil holder



The paper-lifting mechanism and the metal flap that holds the paper down on the pegs. Lift the brass tab on the left of the flap, push down on the brass tab on the upper left and a bar effortlessly and evenly pushes the paper off the 3 pegs . . .



There are four rubber-tired ball-bearing assisted wheels that allow the heavy disc and its mechanics to easily swivel in its reservoir.



The wheels on the bottom are within slots.



The wheels on the top are attached with special brackets.



A close-up look shows how the studio was able to utilize pre-existing parts in the construction, along with their tailor-made elements.

Chicago Roller Skate Company ad, circa 1929



A view of the underside of the disc and its paper-lifting apparatus

STURDY LEGS Stronger Ankles



For
YOUR
Youngster

For HEALTH'S Sake Roller Skate

Encourage your youngsters in this wholesome, healthy sport. It builds strong lungs, stout, sturdy legs and stronger ankles.

Hal Roach's OUR GANG "Roller Skate for Health's Sake."

It fortifies young and old—develops vital energy needed for success and happiness in life. But choose **QUALITY**—the famous "Chicago" Rubber Tire Roller Skate "Speed Without Noise." No harsh grating or metallic noises to disturb you or your neighbor. Give your children the best for health's sake and longer service. Demand "Chicagos."

If your dealer can't supply you, don't accept substitutes, but order direct, enclosing price.

Chicago Roller Skate Co.

Est. over Quarter Century
4408 W. Lake St.
Chicago, Ill.



Send for this free booklet. Tells how to roller skate correctly—races—games, etc. Of interest to children and adults alike.



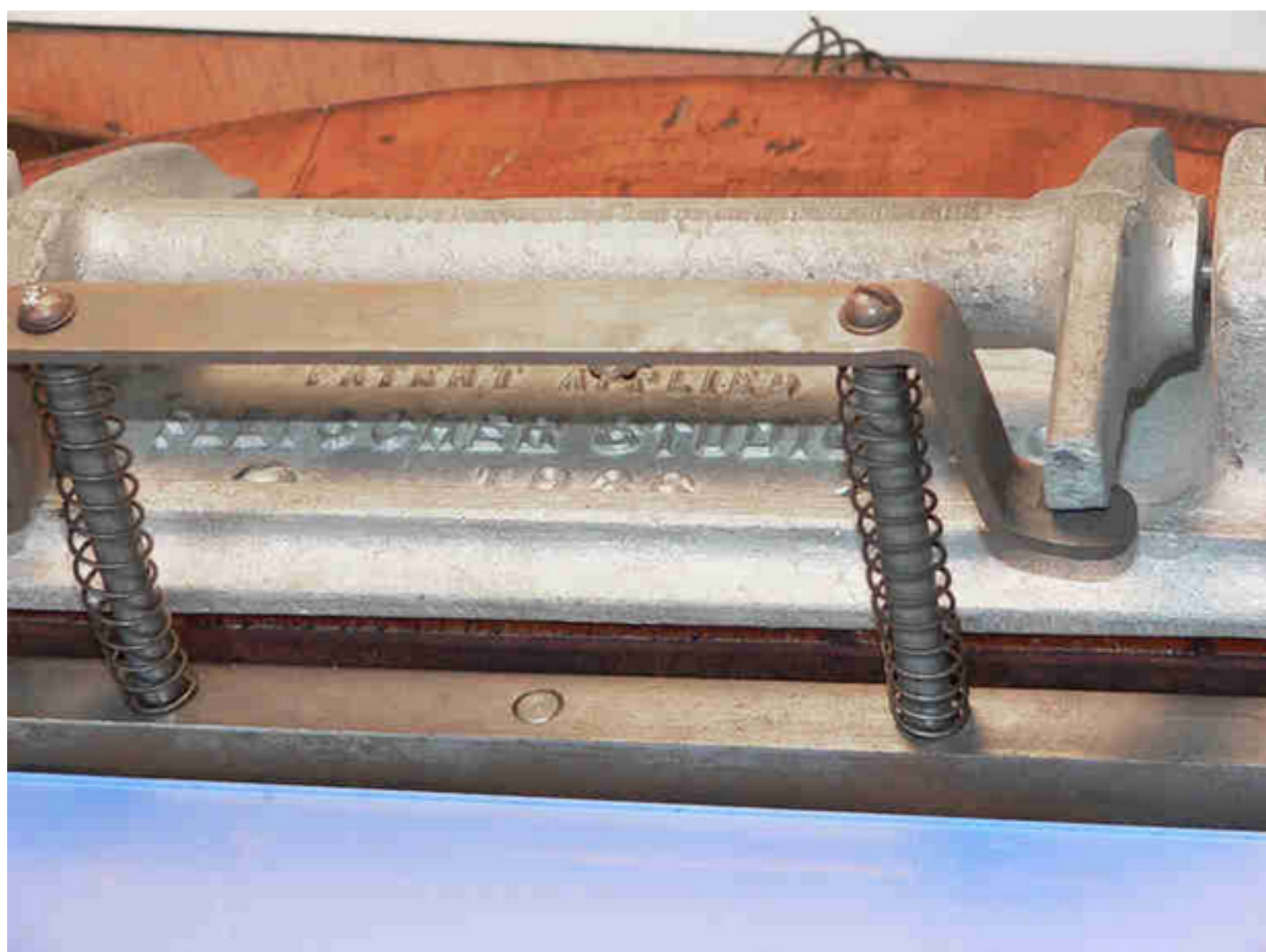
Get this gold finish club pin—join Roll on Rubber Health Sport Club. Send 10c with dealer's name for postage

No. 181—The Super Roller Skate for children and grown-ups. Rubber Tire Wheels—shock-absorbing, ball-bearing, noiseless—outwears steel two-to-one. Price \$4.

No. 101—Some prefer "Chicago" Double Tread "Triple-Ware" Steel Wheels. Price . . . \$2.25



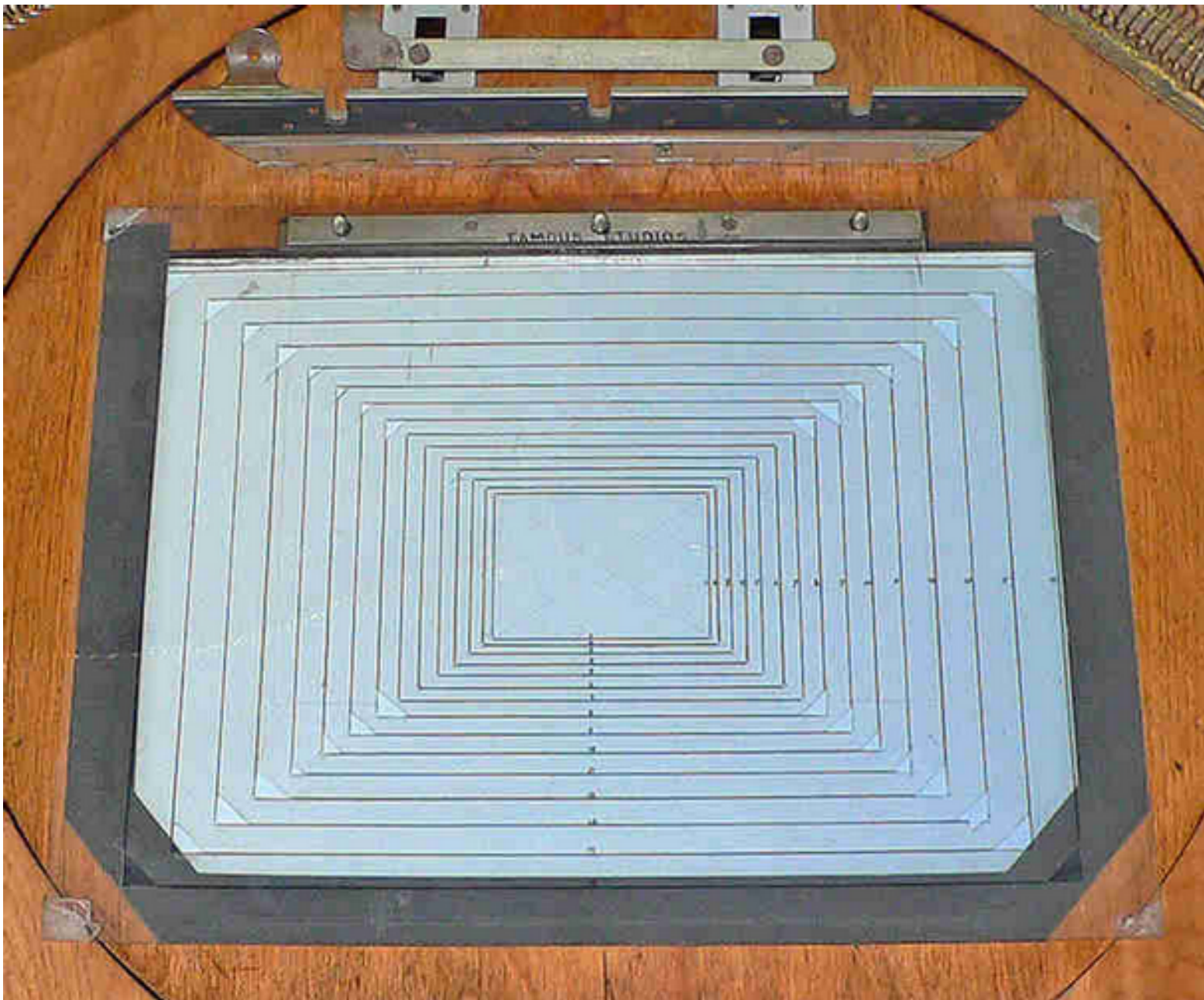
"CHICAGO"
TRADE MARK REG. U.S. PAT. OFF.
Rubber Tire Roller Skates
"Speed Without Noise"



The cast-aluminum base is embossed "Patent Applied For – Fleischer Studios Inc. – 1936"



A close-up of the Inkwell holder. Place the ink bottle within one of the three slots, slide the plate to the left, and it grabs the inkwell's neck so it doesn't slip.



The flap lifted, showing the lifting bar that fits over the pegs. That's an acetate Famous Studios field guide owned by animator Marty Taras. The little triangles cut out at each right angle of each field would allow for marking the corners of the field on the paper underneath.



The Fleischer Studios disc wedge with field guide and original punched Fleischer/Famous paper



Brass Fleischer pegbar



Close-up of above



A shot from [Michael Barrier's blog](#) showing a 1930s interior of the Fleischer production room and the drawing-disc wedges in use



An MGM Cartoon Studio pegbar — wish I had the disc . . .



An example photographed at MGM, of the above pegbar in use by animation director Tex Avery, while producer Fred Quimby looks on



An aluminum “Animaruler” that slips over Acme pegs and allows an un-ruled pegbar to be used as an incrementally ruled set of pegs

The next three pictures are from 2009’s [“It All Started Here”](#), an exhibit tracing the history of the New York animation industry.



The paper punch used in the Bray Studios, with various examples of pegbars seen above



Various paper punches In the rear: Signal Corps (left) and Oxberry In front: Acme (left) and Famous Studios (three round)



An animation disc celebration!

For more on working in animation, download the HOW Design Conference presentations [Beyond Print: Leveraging Your Print-Based Design Assets in Video and Animation](#) and [Motion Graphics: Getting Started is Easier Than You Think](#).

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About J. J. Sedelmaier

As President/Director of [J. J. Sedelmaier Productions, Inc.](#), he is responsible for launching some of the most talked about broadcast animated productions of the past two decades – MTV’s “Beavis and Butt-Head”, SNL’s “Saturday TV Funhouse” series with Robert Smigel (“The Ambiguously Gay Duo”, “The X-Presidents”, etc.), Cartoon Network/Adult Swim’s “Harvey Birdman - Attorney at Law”, and the “Tek Jansen/Alpha Squad Seven” series for The Colbert Report. Sedelmaier has produced over 500 film and design pieces. In addition, he’s a very organized hoarder. [View all posts by J. J. Sedelmaier →](#)